Output
Breakout Discussion Group 4

Other Issues

10 July 2002

Others Team

- Tom Dufresne
- Tom Mowbray
- Bob Myer
- Bowin Loftin
- Al Sciarretta

Other Issue

- What are the organizational implications involved in adopting component technology?
  - Does the current enterprise culture support component technology?
  - Is there a willingness to consider alternatives to current practices, or are the time, cost, or performance pressures too great to allow consideration of other approaches?
  - Are there other higher priority projects that will consume available resources and funding, leaving none or too little, for component technology?
  - Will the current development processes support component technology?
  - Does the organization possess the skill sets necessary for component technology?

Discussion

- Don't promise the "holy grail"
- Funding, funding, funding
  - Little historical support for funding enterprise efforts – more program focused
- Little enterprise culture
  - There is some hope….. FCS
- Negative incentive in a competitive environment
- Skill sets not ubiquitous
  - Are there enough "smart" people in this subject?
  - Not all the problem is within M&S community
    - Computer Science community needs
- What's the benefit
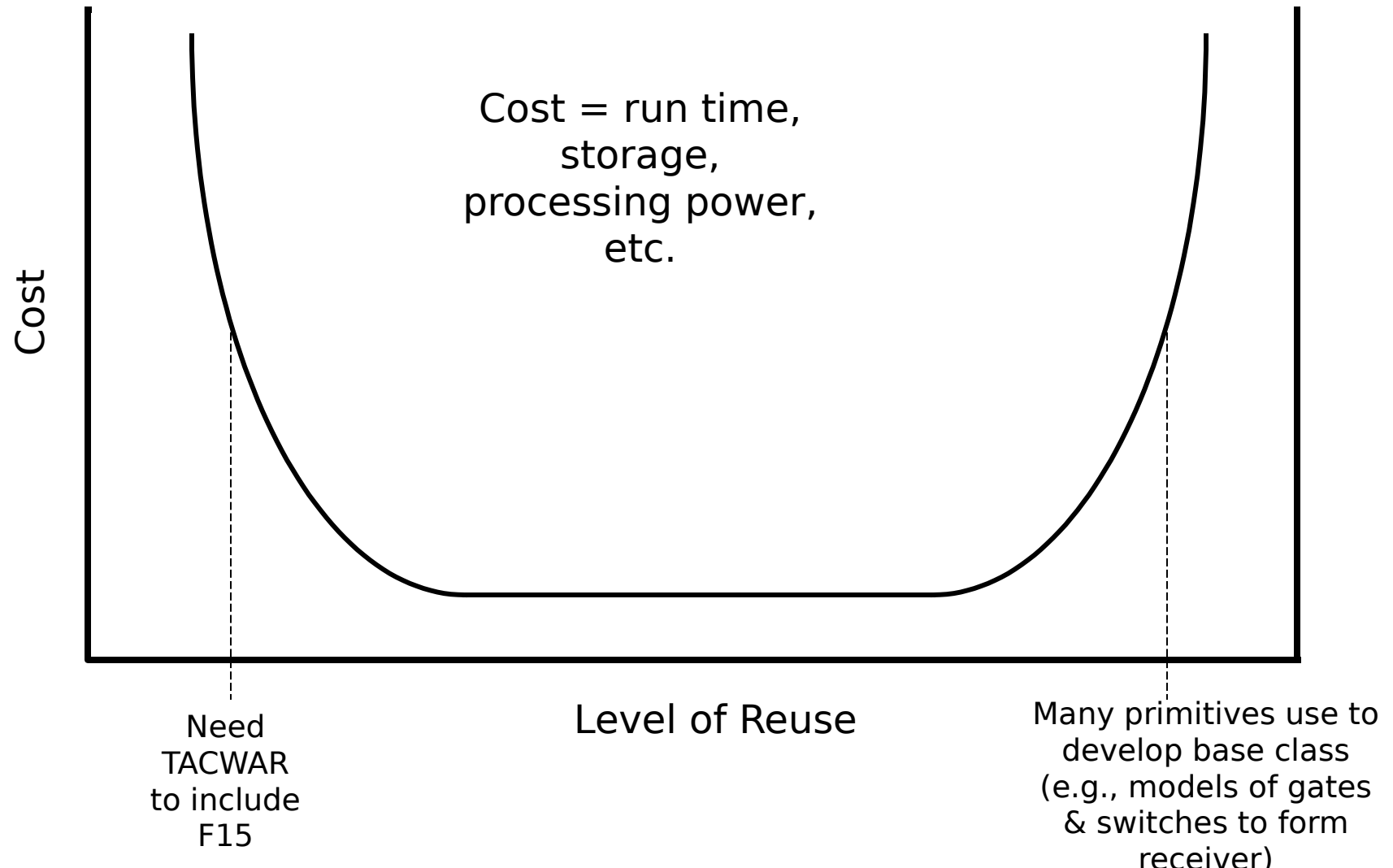 - *If we build it……will they come?*

Other Issue

- Are there both costs and savings associated with reuse?
  - What are the costs?
  - What are the savings or payoffs?
  - What is the break-even point?

Discussion

- Build sims from scratch vs. reuse
  - Intuitively obvious, but….
    - Cost of wrapping a legacy system is costly
    - Cultural negative incentives to share
    - Overhead
    - Add infrastructure
    - Bathtub curve
    - Legos vs simulations
      - Lego Ball: syntactic may be okay, but semantic may not
        - Meaningful pieces must be snapped together in a meaningful way
      - *Have this…. What can we build?*
               Vs.
        We want to build this….. Now what do we have?
- Benefits will be the "carrot"
  - They must be articulated
- Will we leverage commercial practices?

Bathtub Curve

Cost = run time,
storage,
processing power,
etc.

Cost

Level of Reuse

Need
TACWAR
to include
F15

Many primitives use to
develop base class
(e.g., models of gates
& switches to form
receiver)

Other Issue

- What discourages component sharing (e.g., existing or draft policies, resources, cultures, paradigms, etc.)?
  - What is needed to encourage change?
  - Are there Service Policy issues involved?

Discussion

- Poor marketing
  - Can't just promise a benefit....must show the benefit
    - Reduce time of expert to build simulation?
    - Reduce expertise to build simulation?
    - Reduce costs?
    - Build a Proof of Concept
      - Build a simulation that a non-expert can use to pull in data and scenario on-line
- Cultures
  - Pay large amount up front???
  - Competition
    - Lack of trust
    - Performance of detailed model in less-than-adequate simulation
  - People don't understand/appreciate limitations
- Proprietary issues
  - FAR implications
- Corruption/defiling of databases
- Funding of service providers?
  - Funding of maintenance of components

Other Issue

- Who owns standards, architectures, and component infrastructures when they are developed?

Discussion

- GOOD question!!
- What has worked?
  - MSRR?
  - IEEE?
  - Government vs Industry? (e.g., RTI)
- Things to consider
  - QoS protocols
  - Best practices and guideline standards
  - May need more structure/standardization than HLA

Other Issue

- What are the primary issues you are currently facing?
  - What are the most significant technical challenges you are currently facing?
  - What are the most significant infrastructure challenges you are currently facing?
  - What are the most significant cultural challenges you are currently facing?
  - What potential solutions have you come up with?
  - What is the supporting rationale for these solutions?
  - What are the potential risks of these solutions?

Discussion

- Define composability
  - Multiple levels?
- Does one size fit all?
- Don't have an educated community
- Are there many technical challenges?
  - Technical impossibility – automated V&V
  - Automated unit test
- Agg/Disagg among models, sims, & databases
- Security
- Real time performance
- Maintaining state-of-the-art and configuration management in repositories
- Infrastructure: differing computing environments, differing federates, etc.
- Belief: *HLA is just tip of the iceberg*

Other Issue

- Are there specific areas that you feel would benefit from additional theoretical research?
  - What are these areas?
  - Who would you recommend as qualified/appropriate to conduct this theoretical research?
  - What is the estimated time before this theoretical research could provide fruit?

Discussion

- Define composability
  - Does one size fit all?
- Language
- V&V – automated?
- Characterize and quantify Quality of Service needs
- Review OO-simulation as an approach
- Re-examine CMMS
  - Find out what applies what is different
- Develop WGs to deal with issues

Proposed FY03 Efforts

- Proof of principal effort
  - E.g., Shared software effort within collaborative development environment, based on an M&S project
- Develop Needs – learn from experience
  - Design composable simulation environment for
    - Hypersonic Vehicle T&E
    - Human Behavior/Performance Representation Effort
    - Expansion of the AFIT program
  - Workable solution that may be doable but not necessarily optimal
- Work with ONR (recent BAA) to leverage/develop 6.1/6.2 effort to address
  - Syntax vs semantics
    - Develop lexicons/ontologies for organizing them
- Use emerging results to develop long range plan